Amendments to the Specification

Please replace the second paragraph on page 1 (beginning at line 10) with the following amended paragraph:

Many modern communication networks employ optical transmission of data packets. The main advantage of optical transmission is almost unlimited bandwidth, which allows transmitting data at high rates. Data is divided into packets, each of which contain~~ing~~ information that should be delivered to a destination, and a header that contains the routing data. The routing data comprises address information which is used to route the data through a series of switching nodes to its destination. Each switching node decodes the address information by processing the header information and switching the packet onto a proper communication link (usually using a routing table that is stored in each switching node). The same procedure is repeated at the next node and so forth, until the packet reaches its destination.

Please replace the third paragraph on page 1 (beginning at line 23) with the following amended paragraph:

Conventional routing methods of data packets in optical networks employ electrical processing of the header information, which is carried out at each switching node.

However, due to hardware limitations such electrical processing is performed in a relatively low rate, and therefore the "decision" made at each switching node, through which communication link to forward each ~~packed~~ packet is delayed. Therefore, the overall delay time of each delivered packet from source to destination is increased.

Please replace the paragraph bridging pages 10 and 11 (beginning at line 23 on page 10) with the following amended paragraph:

Fig. 1 schematically illustrates the structure of a conventional optical data network. The system 100 comprises a plurality of routers 101a to 101e, each of which is used to direct data carried from a source to a destination by way of an optical signal routed through several routers that are connected by a set of optical links 102a to 102i, such as optic fibers. For example, data from source S intended to destination D1 can be directed to its destination by routers 101a and 101b ~~trough~~ through links 102a, 102b and 102d, or alternatively by routers 101a 101c and 101b ~~trough~~ through links 102a, 102c, 102i and 102d. Each router comprises a routing table which determines to which router and through which link the data will be forwarded at each step, until the last router opens (or switches) the corresponding link to the

destination. These routing tables are periodically updated according to varied traffic loads and network availability. IP routing procedure as known in the art *per se* is an example of a procedure where such a periodic update is carried out. Each router comprises an array (a "router matrix") of controlled optical switches that are activated according to the destination address and to the updated routing tables. Conventional optical switching schemes employ electrical processing of each data packet by reading the header information and extracting the destination address of that packet. The extracted address is presented to the routing table of each router and in response the router selects the next router and a corresponding optical link, through which the optical (data carrying) signal will be forwarded so as to proceed to its proper destination. In addition, the router may also convert the extracted address to another address which represents the destination in the routing table of the next router (i.e., each router may have different address code for the same destination). Typically, the switching operation is carried out by deflecting the light beam using a device such as electrically controlled prisms, mirrors, liquid crystals and the like.

Please replace the first full paragraph on page 14 (beginning at line 6) with the following amended paragraph:

Fig. 3 schematically illustrates the generation of an optical address, according to a preferred embodiment of the invention. The optical link 301 comprises a laser diode 300 at its distal end, which emits light that is modulated by the data that ~~shout~~ should be transmitted. The modulated light is radiated to an optic fiber 301. An array of N light emitting sources 302, such as laser diodes is controlled to generate a combination of lighted/unlighted pixels, each of which corresponds to a specific light emitting source. The light of each pixel is radiated into a corresponding optic fiber 303 and represents an element of the desired routing address. The optical link 301 also comprises the resulting bundle 304 of N optic fibers, which represents the optical address bus. The fibers in bundle 304 may be arranged in a way that the optic image received therefrom represents the optical address as a vector 305, or as an array 306 having any applicable geometrical arrangement. In this example, the dark points in the vector 305 (or array 306) represent a lit fiber that corresponds to "1" logic and the brighter points represent an obscure fiber that corresponds to "0" logic. Therefore, the optical address in this example represents the binary

combination "1,0,1,1,0,0,1,0,1,1,1" (of 2^{11} possible combinations).